

GOALS AND OBJECTIVES

FOR NATURAL RESOURCES MANAGEMENT

Goals established by the General Management Plan

The park's General Management Plan laid out broad goals which guide natural resources management in the park. Those goals, organized by category, are:

Increase knowledge of natural resources

- encourage and assist in cooperative research efforts designed to provide management information

- keep records of weather conditions for park areas within NPS jurisdiction in order to provide for the welfare of the public

- ensure that a regular systematically coordinated resource monitoring/research program is developed to provide basic information for pinniped resources management – this program is to be coordinated through and in agreement with the National Marine Fisheries Service or its designated agents

- increase public understanding and appreciation of marine birds through education and observation without disturbance

- ensure the implementation of a regular, systematically coordinated resource monitoring/research program to provide basic information for the management of marine birds.

Restore the terrestrial ecosystem

- return island vegetation to a condition reminiscent of the period before European man began altering the islands

- preserve all native snails, living and fossil, and promote the recovery of species that have been reduced in abundance and distribution by man's activities

- encourage successful reestablishment of the bald eagle and recolonization of the peregrine falcon into historical habitat on the Channel Islands to aid in the recovery of these two endangered species

- protect and encourage the reestablishment of favorable land bird habitat on the islands, recognizing the particular importance of arboreal and brushy areas

- remove feral mammals that affect land birds

- eradicate rats from Anacapa and San Miguel islands

- reduce human caused erosion on all of the islands to a minimal level and aid in the recovery of soils and vegetation.

Manage marine resources

- encourage species diversity and abundance of pinniped populations to return to the levels that may have occurred prior to the activities of European man and that were based upon habitat and food availability.

- encourage and cooperate with the California Department of Fish and Game and other agencies in reintroducing or allowing repopulation of sea otters.

- encourage state and federal agencies to manage the marine and associated resources around the Channel Islands to ensure adequate marine bird food reserves and to guard against increased levels of pollutants entering the marine environment

- allow species diversity and abundance of breeding marine bird populations to return to the levels that may have occurred prior to the activities of European man and that were based upon habitat and food availability.

- cooperate, encourage, and assist the state in development of management philosophies that emphasize the nonconsumptive use of the marine resources within the state ecological reserves that surround the islands.

- assist the state of California in management of the nearshore and intertidal zones, to ensure perpetuation of marine resources.

Maintain natural ecosystem elements

stringently protect the remaining population of the threatened island night lizard, as well as its preferred habitat

maintain the good health of the island fox population on San Miguel

Allow natural processes and population fluctuations to occur with as little human intervention as possible.

maintain groundwater reserves on San Miguel Island at a level that will allow natural flow to maintain terrestrial habitat and prohibit intrusion of salt water

maintain natural drainage patterns on Anacapa and Santa Barbara islands

exercise NPS responsibility to maintain the high air quality of the park and protect air quality related values, especially if the park is upgraded to a Class I area

when private lands have been acquired on east Santa Cruz and Santa Rosa Island, ranching and other commercial operations will be discontinued, with an appropriate phaseout period

exotic animals such as cattle, sheep, elk, deer, swine, and horses will be removed from both Santa Rosa and east Santa Cruz. A small, select number of animals may be retained as part of the historic scene in the 800-acre main ranch area on Santa Rosa, along with a limited number of horses for ranger patrols on both islands.

Protect natural resources and educate the public

preserve, in place, paleontological material

eliminate all sources of park originated water pollution from the islands and cooperate with and review proposals for neighboring development, to keep discharges at a minimum.

Encourage use of the islands by birders in a manner that emphasizes the interrelationships between land birds and fragile resources

Increase public understanding and appreciation of pinniped resources through education and non-disturbing observation

Discourage or prohibit, especially during breeding seasons, any activities or programs that result in pinniped disturbance and do not contribute to management of the species

Develop a conscious, vigilant concern and awareness for actions potentially detrimental to pinniped welfare

discourage or prohibit any activities or programs that result in disturbance to marine birds and do not contribute to management of the species, especially to breeding colonies

develop a conscious, vigilant concern and awareness for actions potentially detrimental to the welfare of marine birds

assist the state of California in management of the nearshore and intertidal zones, to ensure perpetuation of marine resources

assist the state with enforcement of special regulations pertaining to the ecological reserves and other appropriate state laws

provide for educational, interpretive, and recreational use of intertidal and nearshore areas, recognizing the need for establishment of procedures designed to mitigate human impact

cooperate with and assist appropriate state and federal agencies in implementation of existing action plans for containment and clean-up of oil spills to protect the marine resources surrounding the islands.

Recovery Goals for Native Terrestrial Plant Communities

The park has more specific goals for recovery of native terrestrial plant communities than it has for most other resources. This is because in 1994, biologists with the park, U.S. Fish and Wildlife Service, and the U.S. Geological Survey assembled a team to develop goals and standards for conservation of proposed, candidate, and species of concern of the northern Channel Islands. Initially, the hope was to develop goals and management actions that would be sufficient to prevent listing of the proposed plant species. Although the listing of the plant species did occur, the team, nonetheless, completed the process of determining goals for recovery. They determined that an ecosystem-based approach was the most effective way to address the recovery needs of the greatest number of species simultaneously. Achievement of these measurable objectives will further the goals stated above for "Restore the Terrestrial Ecosystem".

There is precedent on the islands for achieving species recovery through habitat restoration. Junak et al. (1995) cite numerous examples of recovery of rare species following the removal of sheep from most of Santa Cruz Island. Long-term vegetation trend data

indicate that native shrubs are slowly expanding into grasslands on sandy soils on San Miguel and Middle and West Anacapa islands (NPS unpublished data).

Long-term and short-term restoration goals were developed for species and for each community, along with measurable standards for monitoring progress toward population and habitat recovery. Goals for species recovery are general, and apply to all rare taxa.

Long-term habitat restoration goals are identified as a “Desired Future Condition” for each plant community. These desired future conditions reflect a level of restoration that may be possible in the long-term—in some cases 50 years or more—and that are in accord with NPS policy of striving “...to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and ecological integrity of the plants and animals...” (NPS Management Policies 1988).

Because achieving desired future conditions is a long process, “Interim Goals” were also developed. Interim goals represent a realistic step along the way toward desired future conditions, and they describe the habitat states immediately necessary to sufficiently recover the rare species.

Finally, “Ecological Standards” were developed as measurable conditions for documenting progress towards achieving the interim goals. Island-by-island restoration plans are needed. The “Interim Goals” and “Ecological Standards” provide guidance and criteria against which the health of island plant communities can be compared. Funding constraints and ecosystem factors may impede achievement of these goals in the timeframes indicated.

Grasslands

Desired Future Conditions

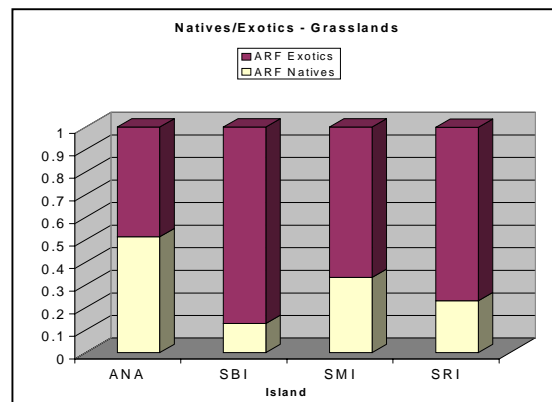
- Grasslands occur in a mosaic with other communities, including coastal sage scrub, chaparral, riparian and woodland communities.
- Grasslands are dominated by native grass and herbaceous species.
- Maintain ecological integrity (natural process and function), including natural role of fire, natural abundance and diversity of wildlife.

CURRENT CONDITIONS

- Annual grasslands have been created and have expanded due to historic grazing practices. It is the dominant vegetation community on Santa Rosa Island.
- Remnant patches of native, perennial, grasslands represented by *Nassella pulchra*, *Nassella cernua*, *Distichlis spicata*, and *Leymus triticoides* are present on the islands.

Table 4 - Native/Exotic Composition of grasslands by island.

Note: ARF – Average Relative Frequency.



Interim Goals

- 1) Reduce the frequency of aggressive alien weeds.
- 2) Reduce the extent of exotic annual grasslands and encourage an increase in the extent of chaparral and coastal sage scrub communities, targeting the borders between grasslands and these other communities.
- 3) Develop grasslands functionally dominated by native grasses and herbs, such that the processes of nutrient cycling, phenological turnover, and soil development are driven by native perennial bunchgrasses rather than alien annual grasses.

Standards

- Decrease the extent of non-native annual grasslands by 20% over the next 20 years.
- Increase the cover of native grasses and herbs by 30% over the next 20 years.
- Decrease the frequency of non-native grasses and herbs by 30% over the next 20 years.
- Eliminate fennel, Russian thistle, milk-thistle, spiny cocklebur and fireweed within 10 years.
- Decrease the extent of bare ground by 10% over the next 20 years.

Southern Beach and Dune

Desired Future Conditions

- A mosaic of stabilized and moving dune systems that maintains the dynamic

Interim Goals

- Increase relative abundance of native species over the next 10 years.
- Decrease frequency of alien species, particularly iceplant, over the next 10 years.
- Maintain stable populations of sensitive species associated with this community.

processes associated with dune communities.

- Maintain ecological integrity (natural process and function), including natural role of fire, natural abundance and diversity of wildlife.

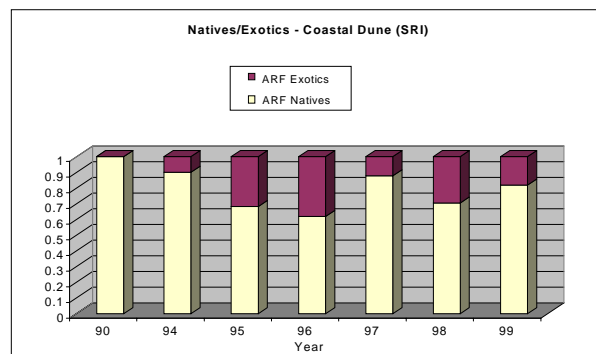
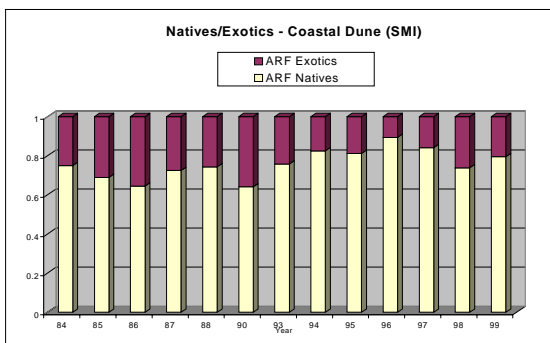
CURRENT CONDITIONS

- Southern beach and dune communities or coastal dune scrub are found on Santa Rosa and San Miguel islands.
- Native plant species currently dominate this island community.
- Iceplant is probably the most serious threat to coastal dune scrub.

Standards

- Native plant species increased by 50% in relative abundance from current levels within 10 years.
- Frequency of alien plant species reduced by 50% from current levels within 10 years.
- Recruitment rate of sensitive species exceeds mortality.

Table 5 Native/Exotic Composition – Coastal Dune.



Lupine Scrub

Desired Future Conditions

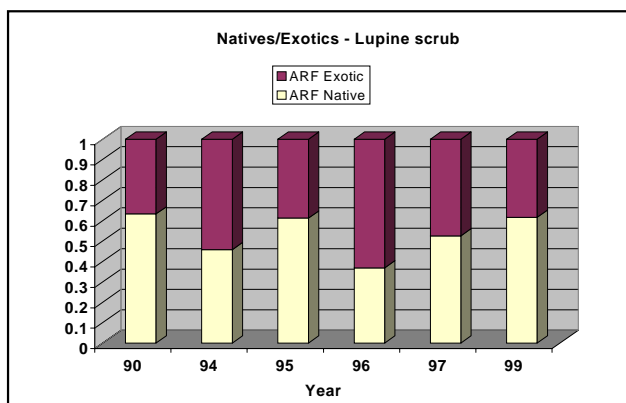
- Lupine community expanded to cover larger areas of stabilized dune habitat.
- Community undergoes natural fluctuations in stand size and demographic profile and rebounds fully after downward population trends.
- Alien species not dominant in community structure or cover.
- Maintain ecological integrity (natural process and function), including natural role of fire, natural abundance and diversity of wildlife.

CURRENT CONDITIONS

- The two dominant lupine *species* (*L. arboreus* and *L. albifrons*) are recovering from a cyclic downturn in the monitoring areas on SRI.
- Non-native plant species (primarily annual grasses) make up a sizable portion of the species found in this community.

Interim Goals

- 1) Achieve natural regeneration (reproduction and recruitment) of woody species over the next 5 years.
- 2) Reduce frequency of alien plant species over the next 10 years.
- 3) Table 6 Native/Exotic Composition - Lupine scrub.



Standards

- a) Recruitment rate of sensitive species exceeds rate of mortality.
- b) Frequency of alien plant species at 50% less than current levels.

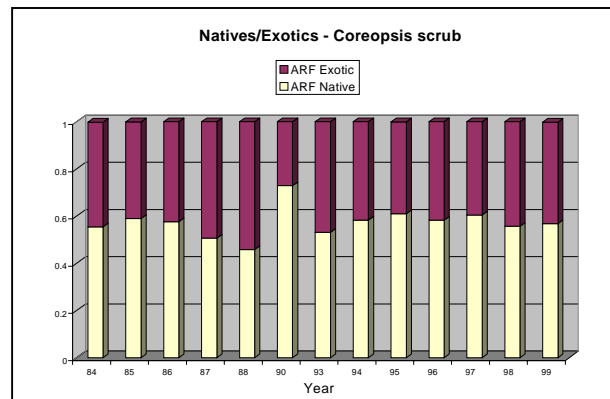
Coastal Bluff Scrub

Desired Future Conditions

- Alien species not a significant factor in community structure, function or competition.
- Native species, especially species of concern, with viable self-sustaining populations.

CURRENT CONDITIONS

- Although no monitoring transects have been set up in coastal bluff communities, anecdotal evidence suggests this community has been less impacted by man-caused disturbance



than any other island community.

- Fennel can establish in this community

however, and it and other non-native plant species do remain a threat.

Interim Goals

- 1) Reduce frequency of non-native plants in the community within 5 years.
- 2) Increase cover of native plants in the community within 5 years.
- 3) Stabilize small populations of species of concern within 5 years.
- b) Cover of native species 50% greater than current.
- c) Recruitment rate of species of concern exceeds rate of mortality.

Coreopsis Scrub

Desired Future Conditions

- Coastal sage scrub community generally expanded.
- Coastal sage scrub composed primarily of native shrubs, herbs and grasses, in a mosaic of seral stages.
- Alien species not a significant factor in community structure, function, or composition.
- Maintain ecological integrity (natural process and function), including natural role of fire, natural abundance and diversity of wildlife.

CURRENT CONDITIONS

- The overall health and spatial area of this community has increased significantly since sheep and cattle were removed from San Miguel Island.
- Non-native plants (primarily annual grasses) still make up a sizable portion of the species found in this community.

Standards

- a) Frequency of non-native weedy species 50% less than current; frequency of other non-natives 25% less.

Table 7 Native/Exotic Composition (all years) - Coreopsis scrub.

Interim Goals

- 1) Achieve a natural increase in the extent of coreopsis scrub stands over the next 10 years.
- 2) Increase cover and diversity of native species in coreopsis scrub stands over the next 10 years.
- 3) Decrease frequency and diversity of alien plant species in coreopsis scrub stands over the next 10 years.
- 4) Increase recruitment and reproduction of sensitive plant species over the next 5 years.
- 5) Determine whether fire has played a natural historic role in the maintenance of this plant community
- 6) Achieve vegetative cover across the community sufficient to reduce sedimentation to streams and hold precipitation in soils.

Standards

- a) Closed scrub canopy of dominant species in unburned coastal sage scrub stands.
- b) Native herb and grass understory cover in unburned stands increased 50% over current levels.
- c) Alien plant species frequency reduced by 50% over current levels.

- d) Sufficient native vegetative cover, litter, and downed wood (i.e. fuel) to carry fire.
- e) Decrease amount of bare ground to 10% or less.

Chaparral

Desired Future Conditions

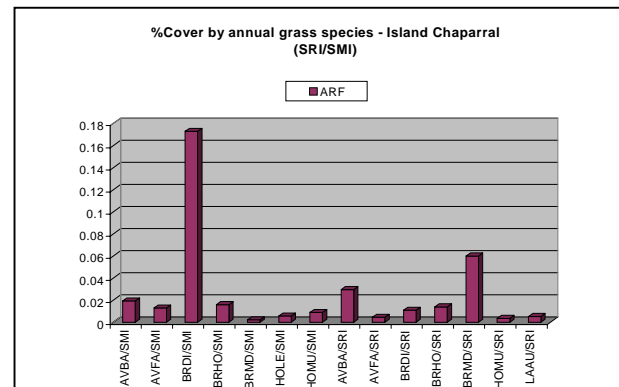
- Chaparral community expanded, with little within-stand fragmentation.
- Ecological and management conditions in place which allow natural processes (e.g. fire, soil formation, litter accumulation) to occur.
- Alien species not a significant factor in community structure, function, or composition.
- Sensitive species are represented by viable, self-perpetuating populations.
- Natural ecological processes, including water and soil-holding capacities, and natural regeneration after fires, are maintained.
- Native species, especially endemics, performing their natural ecological role in the chaparral community.
- Vegetation cover sufficient to reduce sedimentation to streams and hold precipitation in soils.

CURRENT CONDITIONS

- The island chaparral plant community has been greatly altered by historic grazing practices.
- It is believed that many areas that were once island chaparral communities have been type-converted to annual grasslands.
- Trailing caused by cattle, sheep, elk, and deer are common in the island chaparral community.

- Trailing and disturbances by non-native herbivores has allowed for the establishment and spread of non-native plant species into island chaparral.
- Where island chaparral is recognizable as a plant community, exotic annual grasses are a minor but still significant portion of the species present

Table 8 Composition of dominant non-native grass species in island chaparral.



Interim Goals

- 1) Determine what, if any, role fire has played in the creation and maintenance of island chaparral.
- 2) Recover vegetation structure sufficiently to allow fire to play its natural role as determined in the chaparral community within 20 years.
- 3) Recover a litter/duff layer containing a chaparral seed bank within 10 years.
- 4) Achieve reproduction of woody species within 5 years.
- 5) Reduce presence of non-native annual grasses and other weeds in the community within 5 years.
- 6) Reduce internal and edge fragmentation of chaparral stands within 5 years.
- 7) Recover vertical vegetation structure within 10 years.

Standards

- a) Sufficient vegetative cover, litter, and downed wood (i.e. fuel) to carry fire.
- b) Litter at least 10 mm deep.
- c) Increase soil seed bank of native species to within 10% of seed density in undisturbed chaparral.
- d) Herbaceous cover of non-native grasses less than 10% in *Adenostoma* chaparral.
- e) Bare ground occupying less than 20% of island chaparral cover.
- f) Natural regeneration of vegetation occurs following fire.
- g) Recruitment of non-fire dependent woody seedlings and resprouts over 1996 levels.
- h) Vegetation cover of canopy shrubs in unburned stands at 80% or more.

Baccharis Scrub

Desired Future Condition

- Patches or stands of baccharis scrub that fluctuate naturally (increase and decrease in the size and extent) within a larger mosaic of coastal sage scrub, chaparral, and grasslands.
- Alien species not a significant factor in community structure, function, or composition.

CURRENT CONDITIONS

- The baccharis scrub community is only found on SRI.
- The spatial extent of baccharis scrub has decreased dramatically since the introduction of alien herbivores to SRI.

- Non-native plant species represent a major portion of the plant species composition for this community.
- It is expected that with the removal of cattle from SRI the baccharis scrub community will expand into areas now dominated by exotic annual grasses.

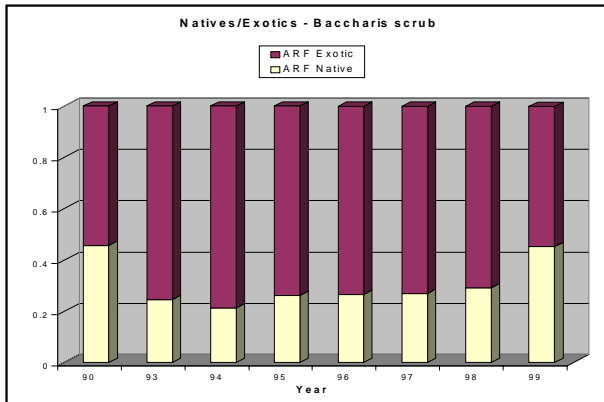
Interim Goals

- 1) Maintain, or allow increase, in the extent of baccharis scrub within 10 years.
- 2) Reduce presence of alien herb and grass species and increase presence of native herb and grass species within 10 years.
- 3) Recover vegetation structure sufficiently to allow fire to play its natural role in shrub communities within 15 years.

Standards

- a) Extent of baccharis scrub 100% greater than current extent on Santa Cruz and Santa Rosa Islands.
- b) Cover of native herb and grass understory 50% greater than current levels.
- c) Frequency of alien plant species 50% less than current levels.
- d) Natural regeneration of vegetation occurs following fire.

Table9. Native/Exotic Composition (all years) - Baccharis scrub (SRI).



Mixed Woodlands

Desired Future Conditions

- Mixed woodlands with a native shrub layer and an understory of native grasses and herbs.
- Development of soil on the eroded surface and recruitment occurring in all woody species.
- Natural expansion of the community along its interface with other communities.
- Increased water retention by soils and reduced runoff.

CURRENT CONDITIONS

- The overall area that this community occupies on the islands is probably not very different from its historical size.
- Vertical structure and recruitment of woody species has probably been altered significantly because of the introduction of non-native herbivores.
- Native plant species are dominant within this island vegetation community.
- This community occurs on Santa Cruz and Santa Rosa

islands but monitoring by NPS has only occurred on SRI.

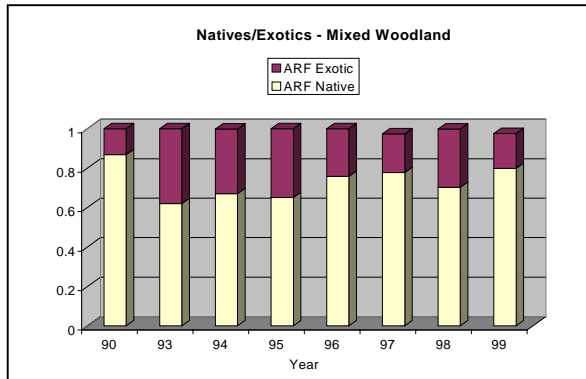
Interim Goals

- 1) Reduce the alien understory within 20 years.
- 2) Reduce soil erosion; build litter layer and soil within 20 years.
- 3) Achieve recruitment and establishment of woody canopy and understory species in 10 years
- 4) Restore vertically stratified community structure.

Standards

- a) Non-native herbaceous plants at less than 30% of total cover.
- b) Bare ground less than 10%.
- c) Litter layer at a minimum of 15 mm deep.
- d) Presence of seedlings and saplings of trees and shrubs.
- e) Canopy coverage of shrub layer 25% greater than current.

Table 10. Native/Exotic Composition (all years) - Mixed Woodland (SRI).



I *Island Oak Woodlands*

Desired Future Condition

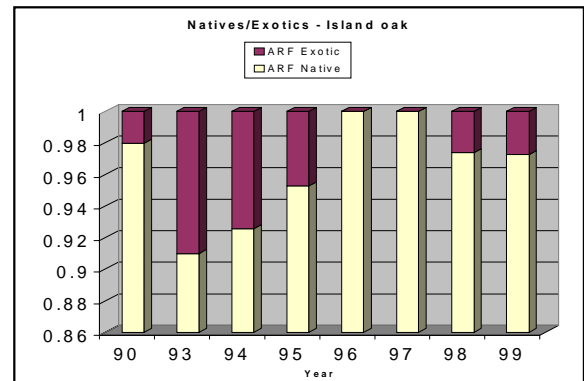
- Island oak woodlands with a stable substrate containing a litter and duff layer that is accumulating rather than eroding away.
- Stands able to support germination and survival of seedlings at the stand peripheries and in canopy gaps.
- An understory that is dominated by native grasses and herbs.

CURRENT CONDITIONS

- The current area occupied by island oak is not believed to be significantly different than what occurred historically.
- The vertical structure of the island oak community has probably changed. There has been no significant recruitment of seedling or juveniles into the community.
- *Quercus tomentella* (island oak) dominates the site but small non-native annual, such as *Stellaria media*, can occur in the understory.

- Although *Q. tomentella* occurs on Santa Cruz and Santa Rosa islands, only those communities on SRI have been monitored by the NPS.

Table 11. Native/Exotic Composition - Island Oak



(SRI).

Interim Goals

- 1) Develop a seed bed for acorn germination within 10 years.
- 2) Seedlings and saplings present within each oak stand within 10 years.
- 3) Reduce the frequency of alien grass and herb species in the understory within 10 years.

Standards

- a) Litter layer at 1.5 cm or better
- b) Seedling establishment and survival following any reproductive event.
- c) Bare ground at 50% of current levels.

Ironwood Stands

Desired Future Conditions

- Ironwood stands with a native shrub layer and an understory of native grasses and herbs.
- Development of soil on the eroded surface and recruitment occurring in all woody species.
- Natural expansion of the community along its interface with other communities.
- Increased water retention by soils and reduced runoff.

CURRENT CONDITIONS

- There appears to be no recruitment of seedling or juveniles into the ironwood stands.
- Ironwood stands on Santa Rosa and Santa Cruz islands are even aged with no stratified vertical structure.
- Two sites on Santa Rosa Island have been monitored since 1990. Monitoring of additional ironwood stands on Santa Cruz Island has recently begun but the initial data is not yet available for dissemination.

Interim Goals

- 1) Reduce the alien understory within 20 years.
- 2) Reduce soil erosion; build litter layer and soil within 20 years.
- 3) Achieve recruitment and establishment of woody canopy and understory species in 10 years

- 4) Restore vertically stratified community structure.

Standards

- a) Non-native herbaceous plants at less than 30% of total cover.
- b) Bare ground less than 10%.
- c) Litter layer at a minimum of 15 mm deep.
- d) Presence of seedlings and saplings of trees and shrubs.
- e) Canopy coverage of shrub layer 25% greater than current (xxx need to compare to transect data). (Do ironwood stands on SRI have a shrub layer?)

Bishop Pine Woodlands

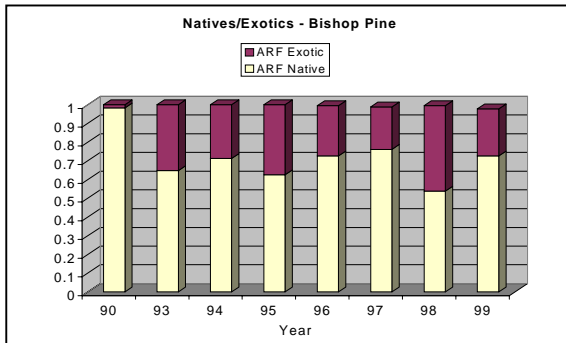
Desired Future Condition

- Healthy, expanding stands unaffected by alien herbivores.
- Ecological and management conditions in place which allow natural processes (e.g. fire, soil formation and accumulation) to occur.

CURRENT CONDITIONS

- Two years ago stands of Bishop pine on SRI appeared to be falling apart. Older, mature trees had died and recruitment of seedlings was non-existent. This past year however has seen successful recruitment of Bishop pine seedlings in the understory.
- Two monitoring transects on SRI are within identified Bishop pine woodland habitat. One additional transect is in habitat identified as chaparral but it does also contain Bishop pine individuals.

Table 12. Native/Exotic Composition - Bishop pine woodland.



Interim Goals

- 1) Maintain the current healthy age structure of the northern Bishop pine population on Santa Cruz Island.
- 2) Within 10 years, allow for seedling establishment and recruitment in the other two stands on Santa Cruz and the stand on Santa Rosa, such that the age distribution evolves from one indicating a senescent population to one with evidence of recruitment.
- 3) Allow fire to perform its natural function in Bishop pine communities within 20 years.
- 4) Increase soil and litter retention within 10 years.
- 5) Develop an understory of vegetation within 10 years.

Standards

- a) An age/size structure similar to that of the

healthy stands on Santa Cruz Island.

- b) Sufficient native vegetative cover, litter and downed wood (i.e, fuel) to carry fire.
- c) Evidence of significant recruitment (seedling/sapling density).

Torrey Pine Woodlands

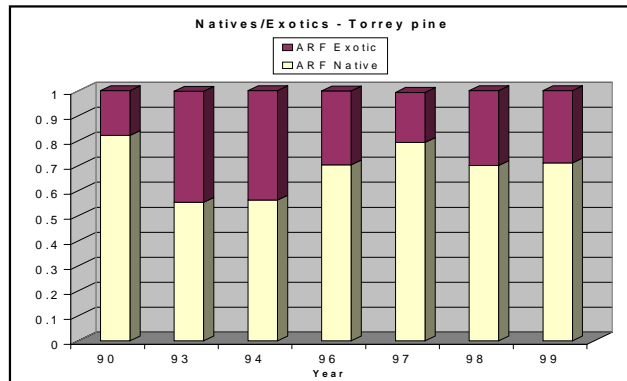
Desired Future Condition

- Healthy, expanding stands unaffected by alien herbivores.
- Ecological and management conditions in place which allow natural processes (e.g. fire, soil formation and accumulation) to occur.

CURRENT CONDITIONS

- The torrey pine community on SRI remains largely intact.
- Although *P. torreyana ssp. insularis* is an overstory dominant, non-native grasses and herbs do occur in the understory.
- Even with the presence of cattle *P. torreyana ssp. insularis* seemed to be expanding beyond its former extent. It has been suggested this may be due to the suppression of fire within the past century. Whether the historic role of fire was "naturally" caused or due to the presence of Native Americans on SRI, is unknown.

Table 13. Native/Exotic Composition – Torrey Pine (SRI).



INTERIM GOALS

- 1) Maintain the current healthy age structure of the Torrey pine population on Santa Rosa Island.
- 2) Determine the “natural” or desired role of fire in the maintenance of the Torrey pine community.
- 3) Allow fire to perform its natural function in Torrey pine communities within 20 years.
- 4) Increase soil and litter retention within 10 years.
- 5) Develop an understory of vegetation within 10 years.

Standards

- a) Sufficient native vegetative cover, litter and downed wood (i.e. fuel) to carry fire.
- b) Evidence of significant recruitment (seedling/sapling density).

Riparian Communities

Desired Future Condition

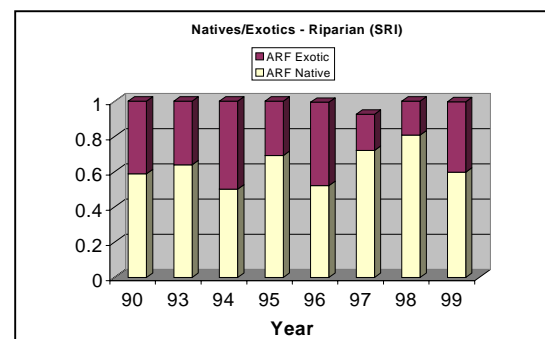
- Riparian areas are in proper hydrologic function and condition.

- Plant communities are dominated by native riparian species.
- Plant communities are compositionally and structurally diverse, providing a full range of habitats for birds, small mammals, amphibians, reptiles and other native animal life.

CURRENT CONDITIONS

- The island riparian communities were greatly altered by the introduction of alien herbivores.
- Many native plant species were eliminated from riparian habitats leading to decreased vegetation cover and increased erosion.
- Significant downcutting has occurred in many stream corridors and a return to “pre-disturbance” conditions is likely impossible.

Table 14. Composition – Riparian Communities (SRI).



Note: Only data from riparian communities on SRI is available. Data represented may not portray an accurate picture as the number of transects in riparian communities is limited and data from a transect within a cattle enclosure is included.

Table 15. Percent bare ground – Riparian Community (SRI).

Riparian - SRI	
Year	Percent Bare Ground

1990	.1950
1993	.4800
1994	.1864
1995	.6750
1996	.6683
1997	.5975
1998	.5207
1999	.4376

Interim Goals

In a minimum of 4 streams on SRI, in Willow Canyon on San Miguel and in a minimum of 2 streams on east SCI:

- 1) Increase cover and density of native riparian plant species within three years.
- 2) Prevent expansion of alien and non-riparian species, beginning immediately.
- 3) Establish a trend toward mid- to late seral riparian plant communities, particularly through an increase in the frequency and distribution of woody species within 10 years.
- 4) Improve stream stability within 5 years.
- 5) Maintain water temperatures within the range required by native aquatic organisms within 5 years.
- 6) Maintain (Improve??) the water's physical and chemical properties to within legal limits within 2 years.

Interim Standards

- a) Cover of native plant species at 30% or greater.
- b) Frequency of alien and non-riparian plants 30% less than 1998 extent.
- c) Number of woody individuals (trees and shrubs) at twice the 1998 density and at 50% greater cover.
- d) Linear feet of bare soil on stream banks at less than 1998 extent.
- e) Streambed sinuosity constant or greater than 1998 measurements.

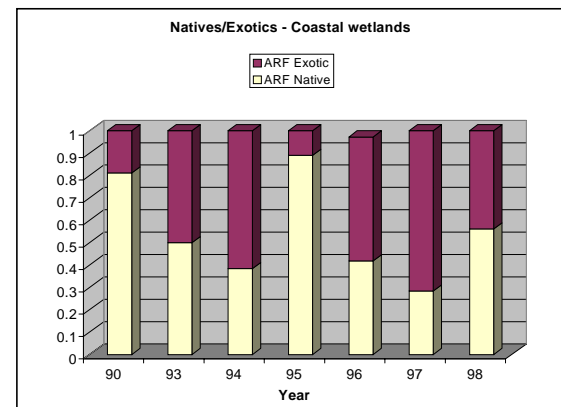
- f) Water quality meets or exceeds standards set by the Central Coast Water Quality Control Board.

Wetlands

Desired Future Condition

- Coastal wetlands with sediment inputs at rates similar to pre-1840 levels.
- Freshwater flow into coastal wetlands in duration and amounts similar to pre-1840 levels.
- A predominance of native vegetation.
- Freshwater vernal wetlands that support their natural species diversity, with special emphasis on those species that are dependent on these habitats.

Table 16. Composition - Coastal wetlands, SRI.



Note: Data from 1999 are not presented.

CURRENT CONDITIONS

- Sediment from an adjacent road is still impacting one coastal marsh on Santa Rosa Island.
- Composition of the coastal wetlands has fluctuated between dominance by

natives and dominance by exotics.

- The coastal marsh at Scorpion drainage on ESCI has been heavily impacted by historic land use, the planting of eucalyptus and restoration efforts

following the 1997 "El Nino" winter.

- There are no vegetation transects established in identified freshwater wetland habitat on any of the islands.

Interim Goals

Coastal wetlands

- 1) Sedimentation rates declining toward pre-ranching levels for Old Ranch House Canyon marsh within 10 years.
- 2) Average period of freshwater flow into wetland extended from 1994-1995 duration over the next 10 years.

Freshwater wetlands

- 1) Functional wetland hydrology and wetland biota attained within 10 years.
- 2) Eradication of invasive alien weeds within 10 years.

Standards

Coastal wetlands

- a) Sedimentation levels to pre-European levels at an average rate of 1 mm per year.
- b) Invasive alien weeds absent from wetland flora.
- c) Freshwater flow present for 5% longer than in 1994-1995.
- d) Ground water levels maintained within rooting zone of wetland native species throughout the growing season.

Freshwater wetlands

- a) Soil compaction 20% less than 1996 levels.
- b) Invasive alien weeds absent from vernal wetlands and their borders
- c) Identify and Mitigate Resource Threats